



U.S. Department of Commerce

**NOAA Office
of
Aircraft Operations**



Welcome to NOAA OAO

Office of Aircraft Operations

The Office of Aircraft Operations (OAO) was established in October 1983 to consolidate management and operations of all aircraft used by the National Oceanic and Atmospheric Administration. OAO aircraft operate throughout the world from their Miami, Florida headquarters.

OAO's WP-3D Lockheed Orion aircraft are four-engine research platforms that not only fly hurricane research and operational reconnaissance each year, but also participate in a wide variety of international meteorological and oceanographic research programs. Recent work for the P-3's included acid rain studies, investigations of the Arctic icepack and the El Niño event, airport wind shear research, and a World Meteorological Organization Program based in Geneva, Switzerland.

OAO uses helicopters to support NOAA ship operations and research primarily along the coastal areas of the Continental United States, Alaska and the Caribbean. These rotary-wing aircraft provide transport for scientific personnel and equipment to places otherwise totally inaccessible due to harsh weather and rugged terrain. OAO personnel and aircraft are involved in such diverse activities as deploying seismic stations, tagging live polar bears for biological studies, hydrographic and geodetic surveys, aerosol studies and fisheries law enforcement.

The light aircraft group manage and operate aircraft of less than 12,500 pounds in support of NOAA's missions and services. These include the gamma radiation snow survey, aeronautical and nautical charts and mapping projects, air chemistry studies, and fish and marine mammal studies.



LOCKHEED ORION (WP-3D)

The WP-3D Aircraft operated by the Office of Aircraft Operations are based at Miami International Airport, Miami, Florida. These aircraft support oceanographic and atmospheric research conducted by the U.S. Department of Commerce, other Government Agencies, and universities.

In the course of a year, the aircraft fly aiding scientists in better understanding hurricanes, studying the oceans, currents, investigating the structure of severe storms, observing Arctic ice development, testing new instrumentation and participating in a variety of other scientific pursuits.

The aircraft are among the world's most advanced instrumented research platforms, and have operated throughout the free world, participating in a wide variety of research missions.



AIRCRAFT CHARACTERISTICS

Weights:

| | |
|------------------------------|--------------|
| Maximum Takeoff | 135,000 lbs. |
| Maximum Fuel (9200 gals.) | 62,600 lbs. |

Dimensions:

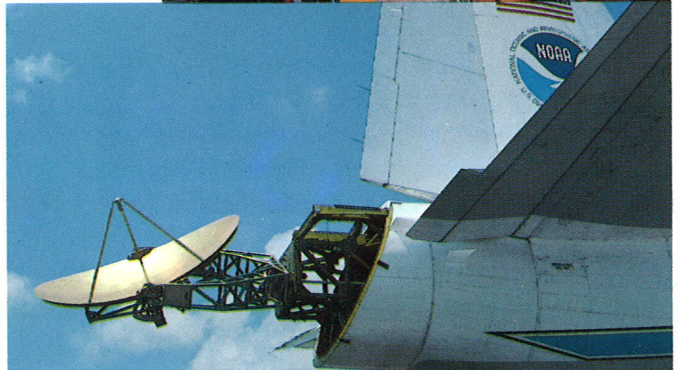
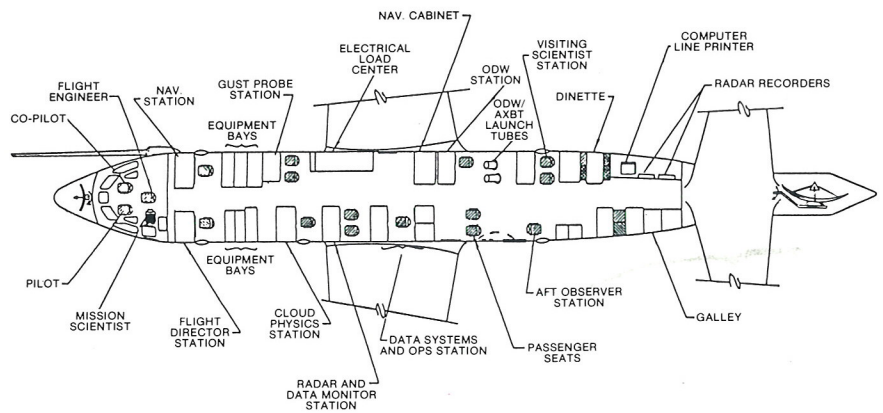
| | |
|--------|---------|
| Span | 99 ft. |
| Length | 104 ft. |
| Height | 34 ft. |

Performance:

| | |
|-------------------------|-------------|
| Maximum Mission | 12 hrs. |
| Maximum Range: | |
| Low Altitude | 2,500 miles |
| High Altitude | 3,800 miles |
| Turb. Penetration Spd. | 220 kts. |
| Maximum Speed | 350 kts. |
| Maximum Altitude | 37,000 ft. |
| Engine Horsepower (ea.) | 4600 |



**Omega Dropwind
Sonde Station**



Tail Radar



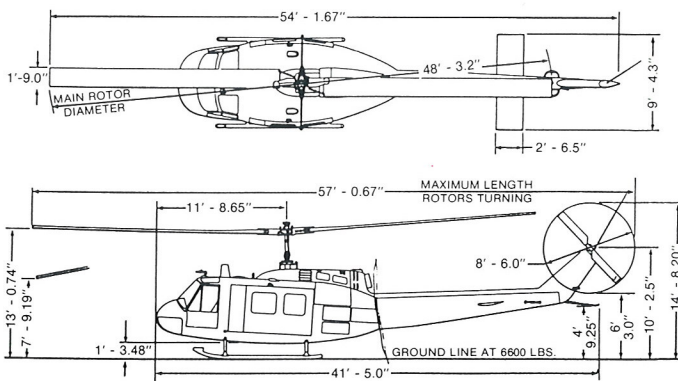
Gust Probe

HELICOPTERS

The OAO operates Bell UH-1 helicopters which are equipped with long range fuel tanks, a continuous read-out navigation system, and additional radios to allow communication with NOAA vessels and ground personnel. The internal loading capacity of 220 cubic feet and external lift capacity of 3,000 pounds makes these aircraft ideal for airborne platforms for many scientific projects.

The helicopters are used to transport scientists and equipment to otherwise inaccessible locations such as mountain tops, islands, ice flows, and wetlands. They are also used for projects requiring aerial observations, sling loading, animal tagging, aerial photography, and shipboard operations.

OAO flight crews work as teams on each project, with the pilot acting as Chief-of-Party. The unique combination of flight and maintenance skills and scientific field project experience of the OAO crews is essential in the completion of each project.



HELICOPTER SPECIFICATIONS

| | | |
|--|-----------------------------|--------------------|
| Maximum Gross Weight | 9,500 | |
| Cruise Air Speed | 95 Knots | |
| Maximum Air Speed | 124 Knots | |
| Maximum Endurance (excluding reserves) | 3.5 hrs. | |
| Standard Crew | Pilot and Mechanic (flight) | |
| Maximum Fuel Capacity: | | |
| Main | 209 | |
| Auxiliary | 200 | |
| Cargo/Passenger Capacity | | |
| with main full only | 1,700 lbs. | |
| Minimum Outside Air Temperature | | |
| for Operations | -40°F. | |
| Electrical Power | | |
| Available | 110V AC; 28V AC; 28V DC | |
| Standard Equipment: | | |
| VOR | VHF-AM | HF (Full Syn.) |
| ADF | VHF-FM | GNS 500A VLF/Omega |
| | | Navigation System |
| DME | UHF | Radar Altimeter |
| Cargo Hook | | Sliding Doors |
| Optional Equipment: | | |
| Popout type emergency flotation | | |
| Fixed float landing gear | | |
| Arctic life raft | | |
| Warm water life raft | | |
| Walkie Talkie radios | | |



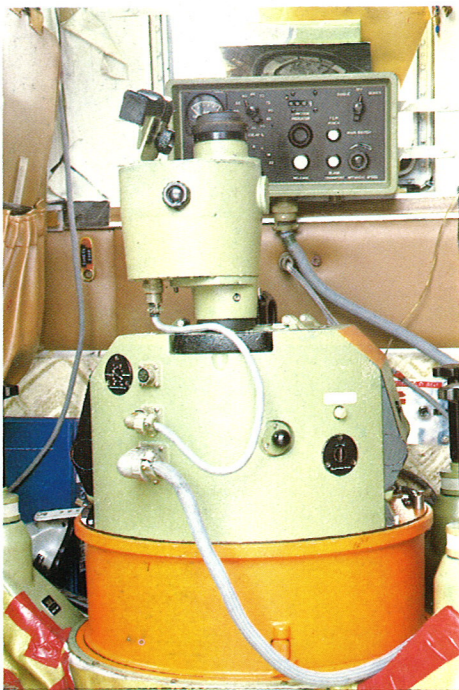
TURBO-COMMANDERS

The OAO operates the aircraft as mobile field units for the National Ocean Service, Nautical Chart Division, based in Rockville, Md. The aircraft's primary mission is the acquisition of aerial photography used in the NOS Nautical Chart Programs. In addition, the aircraft respond to requests from other NOAA components and government agencies for precision aerial photography. This photography supports remote sensing projects ranging from photogeodesy to natural disaster assessment.

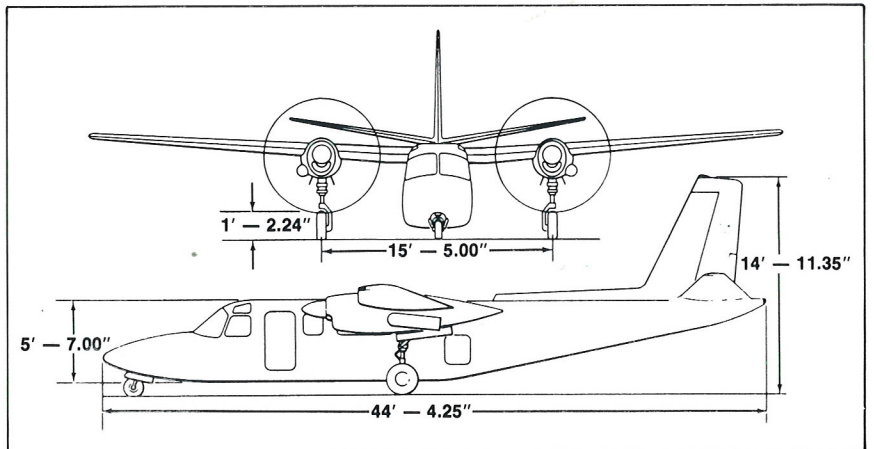


AIRCRAFT DESCRIPTION

The Turbo-Commanders are high wing, twin-engine aircraft specifically designed for utility operations. The aircraft is powered by a pair of Airesearch TPE-331 turbine engines driving 3-blade constant speed propellers. The aircraft are pressurized and maintain shirt-sleeve cabin conditions from sea level to a maximum altitude of 31,000 feet. Structural integrity, flight safety, and minimum maintenance requirements are assured by the rugged all metal construction and design of major airframe components. The wing design and its position in relation to the fuselage provides a high lift capability for short-field operations.



Wild RC-10 Camera



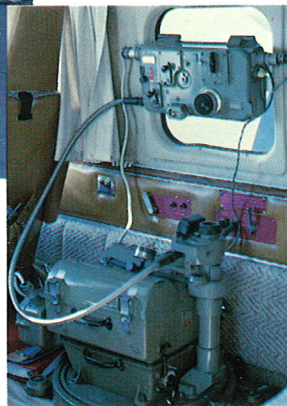
Turbo 690A Commander

SHRIKE COMMANDERS

The Shrike Commander Model 500S is a high wing, twin-engine aircraft with fully retractable tricycle gear, specifically designed for utility operations. It is powered by two Lycoming 10-540 Series, 290 horsepower engines, which drive Hartzel 3-blade, constant speed, full feathering propellers. This engine and propeller combination provides sufficient power for optimum aircraft performance to an altitude of 21,000 feet. Structural integrity, flight safety, and minimum maintenance requirements are assured by the rugged all-metal construction and design of major airframe components. The wing design and its position in relation to the fuselage provides a high lift capacity for short-field operation.



Chart Edit Aircraft



Wild RC-8 Camera

The Office of Aircraft Operations operates a Shrike Commander for the National Ocean Service's Aeronautical Chart Division based in Rockville, Md. This mobile field unit operates throughout the United States collecting photographic and visual data. The program conducts critical, comprehensive aerial reviews of NOAA produced aeronautical charts depicting the National Airspace System. Specialized products required for safety of flight (Minimum Safe Altitude Warning data and precise obstruction location information) are gathered to ensure safety of air travel.

AIRCRAFT SPECIFICATIONS

| | |
|---|-----------|
| Wingspan | 49 feet |
| Length (overall) | 37 feet |
| Height (vertical fin) | 15 feet |
| Propeller ground clearance | 2 feet |
| Gross Weight | 6750 lbs. |
| Camera Installed | |
| Empty weight | 5505 lbs. |
| Payload (with fuel) | 1145 lbs. |
| Camera Not Installed | |
| Empty weight | 5191 lbs. |
| Payload (with fuel) | 1559 lbs. |
| Normal Operation (with 45 min. reserve) | |
| Range | 750 n mi. |
| Endurance | 5 hours |
| Nominal Cruising Speed | 150 knots |

| Dimensions | Height | Width | Length | Volume |
|---------------------|--------|-------|--------|-------------|
| Forward Cabin Door | 46" | 23" | | |
| Aft Cabin Door | 45" | 28" | | |
| Cabin Interior | 53" | 52" | 127" | 177 cu. ft. |
| Baggage Compartment | 41" | 47" | 31" | 321 cu. ft. |

CAMERA:

- WILD RC-8 Aerial Mapping Camera
Associated vacuum and electrical systems
- Fully retracting camera hatch door



Gamma Snow Survey Aircraft

The Office of Aircraft Operations operates a Shrike Commander to support the Gamma Snow Survey program of the Office of Hydrology, National Weather Service, based in Minneapolis, Minnesota. The Shrike is instrumented with a Gamma radiation package used to measure snow water equivalent for use by the National Weather Service River Forecast Centers to estimate spring snow melt flooding potential. The detector is also used to measure soil moisture content. This aircraft operates in the North Central and Northeast United States and Canada.